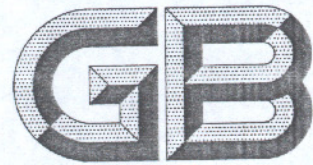


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# 中华人民共和国国家标准

GB/T 2900.73—2008

## 电工术语 接地与电击防护

Electrotechnical terminology—  
Earthing and protection against electric shock

(IEC 60050-195:1998, International electrotechnical vocabulary—  
Part 195: Earthing and protection against electric shock, MOD)

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## 前 言

本部分为 GB/T 2900 的第 73 部分。

本部分修改采用 IEC 60050-195:1998《国际电工词汇 接地与电击防护》及其第一次修改单(2001)。

本部分与 IEC 60050-195:1998 及其第一次修改单相比,主要差异如下:

- 修改了 195-02-03 接地导体的定义,增加了“接地网”内容;
- 修改了 195-02-01 接地极的定义,增加了“土壤”内容;
- 修改了 195-02-30 地回路径的定义,增加了“导体或可导电部分”内容;
- 修改了 195-02-39 磁屏蔽[体]的定义,增加了“亚铁磁材料”内容;
- 修改了 195-04-04 限制进入区域的定义,删除了“经批准”内容。

本部分与 GB/T 2900.71《电工术语 电气装置》相关术语协调一致;与其他现行电工术语国家标准作了尽可能的协调。

本部分中术语条目编号与 IEC 60050-195:1998 保持一致。

本部分由全国电工术语标准化技术委员会提出并归口。

本部分起草单位:机械科学研究院中机生产力促进中心、中机中电设计研究院、中国电子标准化研究所、邮电工业标准化研究所、中国标准出版社。

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本部分为首次发布。

## 电工术语 接地与电击防护

### 1 范围

GB/T 2900 的本部分规定了接地与电击防护的基本概念、电气装置与设备、电击与阈值电流、运行、电压与电流、保护措施和电气安全等方面的术语和定义。

本部分适用于电工技术中涉及接地与电击防护的科学技术领域。

### 2 术语和定义

#### 2.1 基本概念

##### 195-01-01

**参考地** reference earth; reference ground (US)

不受任何接地配置影响的、视为导电的大地的部分,其电位约定为零。

注:“大地”是指地球及其所有自然物质。

##### 195-01-02

**电接触** electric contact

两个及以上可导电部分之间有意或意外的相互接触,从而形成单一持续导电通路的状态。

##### 195-01-03

**[局部]地** (local) earth; (local) ground (US)

大地与接地极有电接触的部分,其电位不一定等于零。

##### 195-01-04

**电击** electric shock

电流通过人体或动物躯体而引起的生理效应。

##### 195-01-05

**电击防护** protection against electric shock

减小电击危险的防护措施。

##### 195-01-06

**可导电部分** conductive part

能传导电流的部分。

##### 195-01-07

**导体** conductor

用于承载规定电流的可导电部分。

##### 195-01-08

**接地,动词** earth (verb); ground (verb) (US)

在系统、装置或设备的给定点与局部地之间作电连接。

注:与局部地之间的连接可以是:

——有意的,或

——无意的或意外的。

也可以是永久性的或临时性的。

##### 195-01-09

**等电位** equipotentiality

几个可导电部分处于电位大体上相等的状态。

195-01-10

等电位联结 equipotential bonding

为达到等电位,多个可导电部分间的电连接。

195-01-11

保护接地 protective earthing; protective grounding (US)

为了电气安全,将系统、装置或设备的一点或多点接地。

195-01-12

作业接地 earthing for work; grounding for work (US)

将已停电的带电部分接地,以便在无电击危险情况下进行作业。

195-01-13

功能接地 functional earthing; functional grounding (US)

出于电气安全之外的目的,将系统、装置或设备的一点或多点接地。

195-01-14

[电力]系统接地 (power) system earthing; (power) system grounding (US)

电力系统的一点或多点的功能接地和保护接地。

[GB/T 2900.57, Z4-11]

195-01-15

保护等电位联结 protective-equipotential-bonding

为安全目的的等电位联结。

195-01-16

功能等电位联结 functional-equipotential-bonding

非安全目的而为运行原因进行的等电位联结。

195-01-17

对地阻抗 impedance to earth

在给定频率下,系统、装置或设备的指定点与参考地之间的阻抗。

195-01-18

对地电阻 resistance to earth; resistance to ground (US)

对地阻抗的实部。

195-01-19

土壤电阻率 electric resistivity of soil

有代表性的土壤样品的电阻率。

## 2.2 电气装置与设备

195-02-01

接地极 earth electrode; ground electrode (US)

埋入土壤或特定的导电介质(如混凝土或焦炭)中,与大地有电接触的可导电部分。

195-02-02

独立接地极 independent earth electrode; independent ground electrode (US); remote earth (deprecated)

与其他接地极之间保持一定距离,使其电位不受大地与其他接地极之间电流的显著影响的接地极。

195-02-03

接地导体 earth conductor; earthing conductor; grounding conductor (US); earth conductor (deprecated)

在系统、装置或设备的给定点与接地极或接地网之间提供导电通路或部分导电通路的导体。

195-02-04

**中间点** **mid-point**

两个对称电路元件的公共点,两元件的另两端与同一电路的不同线导体相连。

195-02-05

**中性点** **neutral point**

多相系统星形连接的公共点,或单相系统的接地中间点。

195-02-06

**中性导体** **neutral conductor**

电气上与中性点连接并能用于配电的导体。

195-02-07

**中间导体** **mid-point conductor**

电气上与中间点连接并能用于配电的导体。

195-02-08

**线导体** **line conductor**相导体(交流系统) **phase conductor (AC) (deprecated)**极导体(直流系统) **pole conductor (DC) (deprecated)**

正常运行时带电并能用于输电或配电的导体,但不是中性导体或中间导体。

195-02-09

**保护导体** **protective conductor (identification; PE)**

PE(缩写词)

为了安全目的,如电击防护中设置的导体。

195-02-10

**保护联结导体** **protective bonding conductor; equipotential bonding conductor (deprecated)**

用于保护等电位联结的保护导体。

195-02-11

**保护接地导体** **protective earthing conductor; protective grounding conductor (US)**

用于保护接地的保护导体。

195-02-12

**保护接地中性导体** **PEN conductor**

PEN 导体

兼有保护接地导体和中性导体功能的导体。

195-02-13

**保护接地中间导体** **PEM conductor**

PEM 导体

兼有保护接地导体和中间导体功能的导体。

195-02-14

**保护接地线导体** **PEL conductor**

PEL 导体

兼有保护接地导体和线导体功能的导体。

195-02-15

**功能接地导体** **functional earthing conductor; functional grounding conductor (US)**

用于功能接地的接地导体。

195-02-16

功能联结导体 functional bonding conductor

用于功能等电位联结的导体。

195-02-17

保护接地兼功能接地导体 protective earthing and functional earthing conductor; protective grounding and functional grounding conductor (US)

兼有保护接地导体和功能接地导体功能的导体。

195-02-18

保护接地兼功能联结导体 protective earthing and functional bonding conductor; protective grounding and functional bonding conductor (US)

兼有保护接地导体和功能联结导体功能的导体。

195-02-19

带电部分 live part

正常运行中带电的导体或可导电部分,包括中性导体,但按惯例不包括 PEN 导体、PEM 导体和 PEL 导体。

注:本概念不一定意味着有电击危险。

195-02-20

接地配置 earthing arrangement; grounding arrangement

接地系统 earthing system (deprecated)

系统、装置和设备的接地所包含的所有电气连接和器件。

195-02-21

接地网 earth-electrode network; ground-electrode network (US)

接地配置的组成部分,仅包括接地极及其相互连接部分。

195-02-22

等电位联结系统 equipotential bonding system

EBS(缩写词) EBS (abbreviation)

为实现可导电部分之间的等电位联结而将这些部分相互连接。

注:如果等电位联结系统接地,它就成为接地配置的组成部分。

195-02-23

保护等电位联结系统 protective equipotential bonding system

PEBS(缩写词) PEBS (abbreviation)

用于保护等电位联结的等电位联结系统。

195-02-24

功能等电位联结系统 functional equipotential bonding system

FEBS(缩写词) FEBS (abbreviation)

用于功能等电位联结的等电位联结系统。

195-02-25

共用等电位联结系统 common equipotential bonding system

共用联结网 common bonding network

CBN(缩写词) CBN (abbreviation)

用于保护等电位联结及功能等电位联结的等电位联结系统。

195-02-26

架空地线 overhead earth wire; overhead ground wire (US)

在架空线的一些或所有杆塔处有意接地的导体,这些导体一般(但不一定)安装在线导体的上方。

195-02-27

[电气]埋地导体系统 (electric) counterpoise system

与架空线路的杆塔的塔脚有电气连接,且埋在地中的导体或导体系统。

195-02-28

地下电缆线路接地极 underground cable-route earth electrode; underground cable-route ground electrode (US); uninsulated earth conductor (deprecated)

通常沿电缆线路敷设,并沿该路径提供接地的接地极。

195-02-29

平行接地导体 parallel-earthing-conductor; parallel-grounding-conductor (US); parallel earth continuity conductor (deprecated)

通常沿电缆线路敷设的导体,并能在电缆线路两端接地配置之间提供低阻抗连接。

195-02-30

地回路路径 earth-return path; ground-return path (US)

由接地配置之间的大地和导体或可导电部分提供的导电路径。

195-02-31

接地端子 earthing terminal; grounding terminal (US); earth terminal (deprecated)

设备或装置上用来与接地配置进行电气连接的端子。

195-02-32

等电位联结端子 equipotential bonding terminal

设备或器件上用来与等电位联结系统进行电连接的端子。

195-02-33

总接地端子 main earthing terminal; main grounding terminal (US)

总接地母线 main earthing busbar; main grounding busbar (US); earth circuit connector (deprecated)

接地配置组成部分的端子或母线,用于多个接地导体的电气连接。

195-02-34

接地开关 earthing switch; grounding switch (US)

电气回路中接地部分的机械开关器件,它能承受规定时间内的非正常状况,例如短路时的电流,但并不要求它承载电气回路正常状况下的电流。

注:接地开关可有一定的短路接通能力。

195-02-35

外壳 enclosure

能提供预期应用上相适应的防护类型和防护等级的外罩。

195-02-36

(在修改单 1 中删除此条)

195-02-37

屏蔽[体] screen

用以减弱电场、磁场或电磁场透入给定区域的器件。

195-02-38

可导电屏蔽[体] (conductive) screen; (conductive) shield (US)

包封或分隔电路和/或导体的可导电部分。



195-02-39

磁屏蔽[体] **magnetic screen**

由铁磁材料或亚铁磁材料制成的,用以减弱磁场透入给定区域的屏蔽体。

195-02-40

电磁屏蔽[体] **electromagnetic screen**

由导电材料制成的,用以减弱时变的电磁场透入给定区域的屏蔽体。

195-02-41

功能性绝缘 **functional insulation**

为了设备所需的正常功能,在可导电部分之间设置的绝缘。

### 2.3 电击与阈值电流

195-03-01

电灼伤 **electric burn**

电流流经皮肤或器官表面或通过它们所引起的灼伤。

195-03-02

[电击]痉挛 **(electrical) tetanization**

由电刺激引起肌肉最大程度或接近最大程度的收缩。

注:反复电刺激的间隔时间若比单一刺激引起的肌肉痉挛时间短,将导致肌肉持续性痉挛。

195-03-03

纤维性颤动 **fibrillation**

单个肌肉纤维之间不能相互协调动作引起的肌肉抽动。

195-03-04

心脏纤维性颤动 **cardiac fibrillation**

一个或多个心室的肌肉纤维性颤动,引起心脏机能的紊乱。

195-03-05

心室纤维性颤动 **ventricular fibrillation**

只发生在心室中的心脏纤维性颤动,造成血液循环无效和心脏故障。

195-03-06

电击致死 **electrocution**

致命的电击。

195-03-07

感知电流阈值 **perception-threshold-current; threshold current (deprecated)**

人体或动物身体能感知的流过其身体的最小电流值。

195-03-08

痉挛电流阈值 **tetanization threshold (current); freezing current (deprecated)**

对一固定频率和波形的电流,引起肌肉持续、无意识、不可克服地痉挛时的最小值。

195-03-09

摆脱电流阈值 **let-go threshold (current); releasing current (deprecated); let-go current (US) (deprecated)**

人体能自主摆脱的通过人体的最大电流值。

195-03-10

心室纤维性颤动电流阈值 **threshold of ventricular fibrillation; ventricular fibrillation threshold (current); fibrillating current (deprecated)**

引起心室纤维性颤动的最小电流值。

注:心室纤维性颤动可引起血液循环停止。

## 2.4 运行

195-04-01

**熟练[电气]技术人员** (electrically) skilled person

具有相应教育和经验,能察觉和避免由于电引起危害的人员。

195-04-02

**受过培训的[电气]人员** (electrically) instructed person

由熟练电气技术人员充分指导或监督的,能察觉和避免由于电引起危害的人员。

195-04-03

**一般人员** ordinary person

既不是熟练技术人员,也不是受过培训的人员。

195-04-04

**限制进入区域** restricted access area

只有熟练电气技术人员和受过培训的电气人员可进入的区域。

195-04-05

**中性点接地方式** neutral point treatment; neutral point connection (deprecated)

中性点与参考地的电连接方式。

195-04-06

**中性点直接接地系统** solidly earthed neutral system; solidly grounded neutral system (US)

至少有一个中性点直接接地的系统。

195-04-07

**中性点不接地系统** isolated neutral system

除保护或测量用途采用高阻抗接地之外,中性点不接地的系统。

195-04-08

**中性点阻抗接地系统** impedance earthed neutral system; impedance grounded neutral system (US)

至少有一个中性点是经具有能限制线对地短路电流的阻抗器接地的系统。

195-04-09

**中性点消弧线圈接地系统** arc-suppression-coil earthed neutral system; arc-suppression-coil grounded neutral system (US); resonant earthed neutral system; resonant grounded neutral system (US)

至少有一个中性点是经具有在发生单相接地故障时能大致抵消线对地电容的器件的系统。

195-04-10

**自动切断电源** automatic disconnection of supply

故障时,保护器件自动将受影响的一根或多根线导体断开。

195-04-11

**短路** short-circuit

两个或多个导电部分之间意外的或有意的形成的导电通路,此通路迫使这些导电部分之间的电位差等于或接近于零。

195-04-12

**线对地短路** line-to-earth short-circuit

在中性点直接接地系统或中性点经阻抗接地系统中发生的线导体和大地之间的短路。

注:线对地短路是可能产生的,例如,可经接地导体和接地极而发生。

195-04-13

(在修改单 1 中删除此条)

195-04-14

**接地故障** earth fault; ground fault (US)

带电导体与大地之间意外出现导电通路。

注1: 导电路径可能通过有瑕疵的绝缘, 通过结构物(例如杆子、脚手架、起重机、梯子)或通过植物(如大树、灌木), 并具有显著的阻抗。

195-04-15

**开路故障** (conductor) continuity fault; open circuit fault; series fault (deprecated)

同一导体两点之间意外出现具有相对高阻抗特性的状态。

195-04-16

**线间短路** line-to-line short-circuit

两根或多根线导体之间的短路, 在同一处它可伴随或不伴随线对地短路。

## 2.5 电压与电流

195-05-01

**线[间]电压** line-to-line voltage; phase-to-phase voltage (deprecated)

电气回路中给定点处两个线导体之间的电压。

195-05-02

**相电压** line-to-neutral voltage; phase-to-neutral voltage (deprecated)

交流电气回路中给定点处相导体与中性导体之间的电压。

195-05-03

**线对地电压** line-to-earth voltage; line-to-ground voltage (US); phase-to-earth voltage (deprecated)

电气回路中给定点处线导体与参考地之间的电压。

195-05-04

**中性点位移电压** neutral-point displacement voltage

多相系统中, 实际的或等效的中性点与参考地之间的电压。

195-05-05

**短路时对地电压** voltage to earth during a short-circuit; voltage to ground during a short-circuit (US)

在给定短路点和短路电流值条件下的指定点与参考地之间的电压。

195-05-06

**接地故障时对地电压** voltage to earth during an earth fault; voltage to ground during a ground fault (US)

在给定接地故障点和接地故障电流值条件下的指定点与地之间的电压。

195-05-07

**接地导体(对地)电压** earthing-conductor voltage (to earth); grounding-conductor voltage (to ground) (US)

接地导体和地之间的电压。

195-05-08

**地面(对地)电压** earth-surface voltage (to earth); ground-surface voltage (to ground) (US)

大地表面一指定点与参考地之间的电压。

195-05-09

**预期接触电压** prospective touch voltage

人或动物尚未接触到可导电部分时, 这些可能同时触及的可导电部分之间的电压。

195-05-10

**约定接触电压限值** conventional prospective touch voltage limit在规定的**外界影响条件**下,允许无限定时间持续存在的**预期接触电压**的最大值。

195-05-11

**[有效]接触电压** (effective) touch voltage

人或动物同时接触到两个可导电部分之间的电压。

注:有效接触电压值可能受到与这些可导电部分发生电接触的人或动物的阻抗明显的影响。

195-05-12

**跨步电压** step voltage

大地表面相距 1 m(人的步距)的两点之间的电压。

注:在我国有关跨步电压规范中,人的步距取 0.8 m。

195-05-13

**信号接触电位** signal-touch-potential

预期被人接触的供信号或控制用的带电部分的电位。

195-05-14

**接地故障因数** earth fault factor; ground fault factor (US)在给**定系统结构**的三相系统中某一给**定点**处,发生了影响系统任一点上的一根或多根导线的**接地故障**,在未故障导线上线对地的最大工频电压方均根值与未发生接地故障时导线上线对地的工频电压方均根值之比。

195-05-15

**泄漏电流** leakage current; earth current (deprecated)

正常运行状况下,在不期望的可导电回路内流过的电流。

195-05-16

**杂散电流** stray current因有意或无意的**接地**,在大地中或埋在地下的金属物体中产生的**泄漏电流**。

195-05-17

**部分短路电流** partial short-circuit current由于另一点短路而流经该电网给**定点**的电流。

[GB/T 2900.57, 2.2.26]

195-05-18

**短路电流** short-circuit current

流经给定短路点的电流。

195-05-19

**部分[导体]持续故障电流** partial (conductor) continuity fault current由于另一点导体持续故障而流经该电网给**定点**的电流。

[GB/T 2900.57, 2.2.25]

195-05-20

**[导体]持续故障电流** (conductor) continuity fault current

引起导体持续故障的阻抗内的电流。

195-05-21

**接触电流** touch current

当人或动物触及电气装置或电气设备的一个或多个可触及部分时,通过其躯体的电流。

## 2.6 电气安全的防护措施

195-06-01

**基本防护 basic protection**

无故障条件下的电击防护。

195-06-02

**故障防护 fault protection**

单一故障条件下的电击防护。

195-06-03

**直接接触 direct contact**

人或动物与带电部分的电接触。

195-06-04

**间接接触 indirect contact**

人或动物与故障状况下带电的外露可导电部分的电接触。

195-06-05

**危险带电部分 hazardous-live-part**

在某些条件下能造成危害性电击的带电部分。

195-06-06

**基本绝缘 basic insulation**

能够提供基本防护的危险带电部分上的绝缘。

注：本概念不适用于仅用作功能性目的的绝缘。

195-06-07

**附加绝缘 supplementary insulation**

除了基本绝缘外，用于故障防护附加的单独绝缘。

195-06-08

**双重绝缘 double insulation**

既有基本绝缘又有附加绝缘构成的绝缘。

195-06-09

**加强绝缘 reinforced insulation**

危险带电部分具有相当于双重绝缘的电击防护等级的绝缘。

注：加强绝缘可以由几个不能像基本绝缘或附加绝缘那样单独测试的绝缘层组成。

195-06-10

**外露可导电部分 exposed-conductive-part**

设备上能触及到的可导电部分，它在正常状况下不带电，但是在基本绝缘损坏时会带电。

195-06-11

**外界可导电部分 extraneous-conductive-part**

装置外可导电部分

非电气装置的组成部分，且易于引入电位的可导电部分，该电位通常为局部地电位。

195-06-12

**伸臂范围 arm's reach**

从人通常站立或活动的表面上的任一点延伸到人不借助任何手段，从任何方向能用手达到的最大范围。

195-06-13

**电气外壳 electrical enclosure**

为防止可预见到的电气危险而提供的外壳。

195-06-14

[电气]保护外壳 (electrically) protective enclosure

为防护从任何方向接近危险带电部分并围住设备内部部件的电气外壳。

195-06-15

[电气]保护遮栏 (electrically) protective barrier

为防止从任一通常接近方向直接接触而设置的防护物。

195-06-16

[电气]保护阻挡物 (electrically) protective obstacle

为防止无意的直接接触而设置的防护物,但并不防止有意的直接接触。

195-06-17

[电气]保护屏蔽[体] (electrically) protective screen; (electrically) protective shield (US)

用以将电气回路和/或导体与危险带电部分隔开的导电的屏蔽体。

195-06-18

[电气]保护屏蔽 (electrically) protective screening; (electrically) protective shielding (US)

用与保护等电位联结系统连接的电气保护屏蔽体将电气回路和/或导体与危险带电部分隔开,并提供电击防护。

195-06-19

[电气]保护分隔 (electrically) protective separation

借助于下列方法将一电路与另一电路分隔:

- 双重绝缘,或
- 基本绝缘和电气保护屏蔽,或
- 加强绝缘。

195-06-20

限流源 limited-current source

为电路提供电能的器件: -

- 用限制到无危险水平的稳态电流和电荷供电,和
- 在设备输出端和任何危险带电部分之间设置电气保护分隔。

195-06-21

非导电环境 non-conducting environment

当人或动物接触已变为危险带电的外露可导电部分时,依靠环境(如绝缘墙或绝缘地板)的高阻抗性和不存在接地的可导电部分来进行防护的措施。

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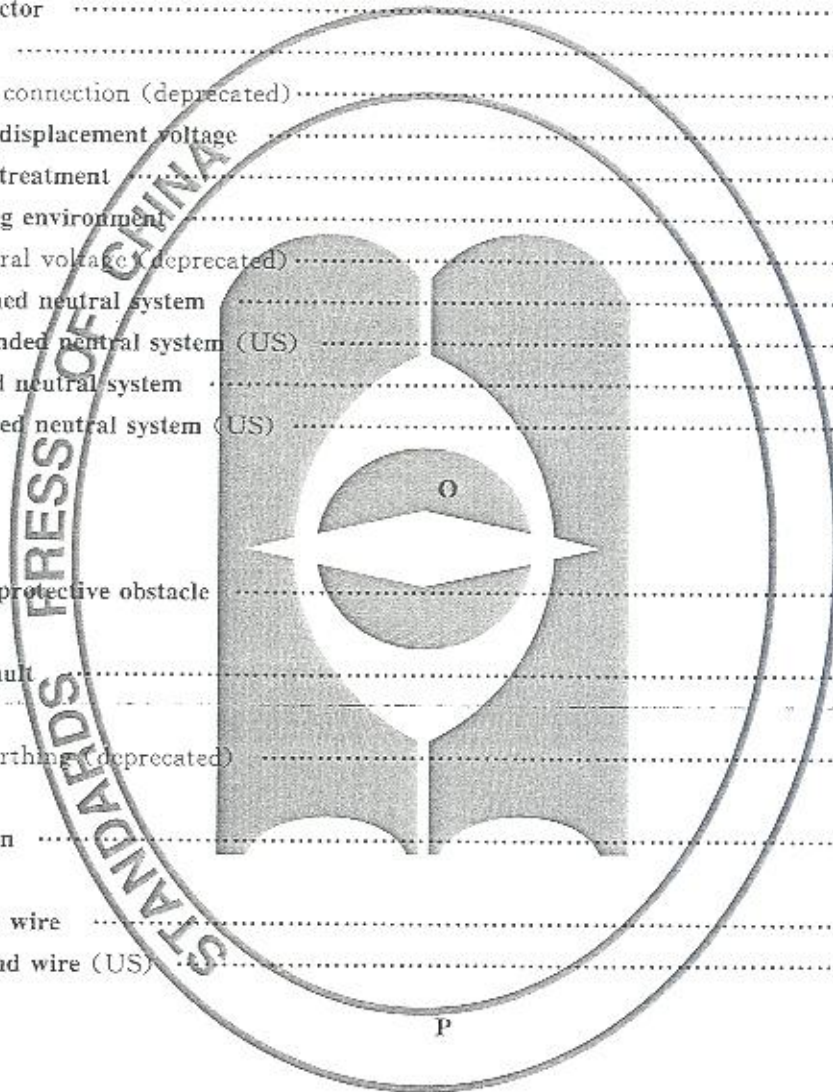
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